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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,904	05/07/2008	Darren Koningen	SMAR-050	1149

24353 7590 11/25/2008

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EXAMINER	
IQBAL, SYED TAHA	
ART UNIT	PAPER NUMBER
4181	
MAIL DATE	DELIVERY MODE
11/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/569,904	KONINGEN ET AL.	
	Examiner	Art Unit	
	SYED IQBAL	4181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/26/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

Claims 1-27 are pending.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 9-10, 20-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al (US4414196).

In regards to claims, 1, 3 and 26, Matsumoto teaches the production of single crystalline ferric oxide particles (abstract). Matsumoto teaches that the process is performed at a certain temperature and utilizes a growth regulating agent with seed crystals. Since seed crystals are used, a seeding ratio also must exist. The temperature range is also mentioned to be 100-250 °C. Matsumoto teaches (Col. 5 lines 29-30) that the reaction was carried out in a closed vessel such as an autoclave. Such vessels are known as high pressure vessels and this involves batch or continuous process. The synthesis of ferric oxide particles from precipitate is further explained in example 1 of Matsumoto.

Claim 2 defines what is meant by a seeding ratio and since the references has a seeding ratio, this definition is inherently met absent evidence to the contrary.

Claims 9 and 10 are directed towards the time it takes to obtain ferric oxide precipitates. In example 1 of Matsumoto (Col. 6 lines 20-22) the suspension time in the vessel, at 180°C, to obtain precipitates is mentioned to be 30 minutes.

Claims 20-25 and 27 are directed towards the product properties. Since the process steps of making ferrite oxide from precipitate are anticipated by Matsumoto, it is the examiners position that the end product will have the same properties absent evidence to the contrary.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US4414196)

In regards to claim 4, it is to be noted that the reference teaches temperatures that overlap the claimed range and overlapping range are held to be prima facie obvious.

In regards to claims 7 and 8, it is to be noted that the reference teaches, in table 2, that the crystals with minor axis ranging 0.06-0.2 micron and a major axis ranging 0.3-1.2 micron. In either of the axis lengths which broadly read on the claimed size , the ranges overlap with the claimed ranges. The use of overlapping ranges are held to be prima facie obvious.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US4414196), as applied above and further in view of Sumita (US6616747).

In regards to claim 5, Matsumoto does not expressly state that the seeding ratio is 20%+ Sumita teaches (Col. 5 Para. 3) that seed crystals can be used of 40% of weight.

The use of this seeding ratio, as taught by Sumita, aids in the uniform growth reaction of the hematite crystals. Thus, the motivation to apply the seeding ratio of Sumita to a process of producing iron precipitates in the process according to the primary reference is in order yield a more uniform growth of crystals which would provide a more beneficial outcome in the process.

In regards to claim 6, Matsumoto does not expressly state that the seeding ratio is 50% to 500%. Sumita teaches (Col. 5 Para. 3) that seed crystals can be used of 40% of weight. The seed size is disclosed to be 0.03μm (example 1). It is suggested in Sumita (Col. 5 lines 20-25) that 40% is used to gain the presented particle size seed crystals and that the increase of weight percent would be disadvantage as a lot of these small size crystals would be needed.

It would be obvious to one having an ordinary level of skill in the art would be motivated to increase the weight percentage of seed used if the seed crystal were of bigger size. This is in fact true in the instant case, the seed particles used in the current invention are disclosed (Para. 0083) to be Bayferrox™ 105M (Lanxess). The size values of these particles are presented to be around 0.09 μm in the specification data

sheet from the manufacturer (attached). In addition, it is the examiners position that one skilled in the art would have appreciated that the use of a higher seeding ratio will provide a higher yield absent evidence to the contrary and thus a person skilled in the art would be motivated to increase the yield in a precipitation process, such as of Matsumoto, by using a greater seeding ratio with a bigger seed size. A higher yield would increase the economical efficiency of the process.

Claims 11-14, are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (US4414196), in view of Schaufelberger (US2916357).

In regards to claims 11 and 12, Matsumoto suggests that the process occurs in a pressurized vessel however, it is silent about the pressure used to perform the process.

Schaufelberger teaches a process of obtaining iron from ores. Leaching and precipitation steps are disclosed. The pressure during the precipitation process is mentioned to be around 400 psig (Col. 3 lines 70). It is also suggested (Schaufelberger Col. 3 lines 57-67) that the motivation to use this pressure would be to prevent boiling due to the use of high temperatures. It is also suggested that this pressure is significant because higher pressures can produce a poor quality of product.

In regards to claims 13 and 14, Matsumoto does not expressly state that the feed to the process can have nitric acid dissolved with iron.

Schaufelberger teaches that before the precipitation step, the iron is leached from the ore with nitric acid. This is then used in the precipitation step to obtain ferric

oxide. It is suggested that the motivation of using nitric acid in the iron feed would be to extract the iron from the ore (Col.3 lines 14-16).

Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (US4414196) in view of Nguyen (US6159435).

In regards to claims 15-19, Matsumoto does not mention the concentrations of the iron and/or the acid, the acid being nitric acid, sulfuric acid or hydrochloric acid.

Nguyen teaches that in a process of precipitating ferrous ions from a solution, the iron concentration in the ferrous solution is 40g/L (Col.5 lines 8-10). It is also suggested that acid concentration is between 30-50g/L (Col. 5 lines 13-14).

Nguyen also suggests that these concentrations are significant. The motivation of using such concentrations is to maximize ferrous oxidation without the danger of forming jarostie (Col.5 18-20). In addition, although the concentrations are not literally defined, one skilled in the art would have clearly appreciated the use of conventional concentrations in the precipitation process taught by Matsumoto in view of the beneficial result of maximizing ferrous oxidation without the danger of forming jarosite (Nguyen).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SYED IQBAL whose telephone number is (571)270-5857. The examiner can normally be reached on Monday to Thursday 7:30am EST to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 5712720579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MICHAEL MARCHESCHI/
Primary Examiner, Art Unit 1793

/S. I./
Examiner, Art Unit 4181